

5905-558

08/05/005

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY



U.S. ENVIRONMENTAL PROTECTION AGENCY  
Office of Pesticide Programs  
Biopesticides and Pollution Prevention Division (7511C)  
1200 Pennsylvania Avenue NW  
Washington, DC 20460

EPA Reg. Number:

5905-558

Date of Issuance:

8/05/05

Term of Issuance:

Unconditional

Name of Pesticide Product:

First -UP™ RST

NOTICE OF PESTICIDE:

Registration  
 Reregistration

(under FIFRA, as amended)

Name and Address of Registrant (include ZIP Code):

Helena Chemical Company  
225 Schilling Blvd., Suite 300  
Collierville, TN 38017

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Biopesticides and Pollution Prevention Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is unconditionally registered in accordance with FIFRA Sec. 3(c)(5) provided you:

1. Submit and /or cite all data required for registration/reregistration of your product under FIFRA Sec.3(c)(5) when the Agency requires all registrants of similar products to submit such data; and submit acceptable responses required for reregistration of your product under FIFRA Sec.4.
2. Revise the EPA Registration Number to read, "EPA Reg. No. 5905-558".
3. Submit three(3) copies of the revised final printed label for the record.

Signature of Approving Official:

*Grant L. Anderson*

Date:

8/05/05

CONCURRENCES

|        |   |                    |  |  |  |  |
|--------|---|--------------------|--|--|--|--|
| SYMBOL | Vanet L. Andersen, Director,<br>Biopesticides and Pollution Prevention Division | 7511C              |  |  |  |  |
| SURNAM | EPA Form 8570-6   | <i>[Signature]</i> |  |  |  |  |
| DATE   |   | 8/5/05             |  |  |  |  |

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**ACCEPTED**  
AUG - 5 2005  
Under the Federal Insecticide,  
Fungicide, and Rodenticide Act,  
as amended, for the pesticide  
registered under  
EPA Reg. No. 5905-558

**First-UP™ RST**  
**(LIQUID GIBBERELIC ACID)**

**ACTIVE INGREDIENT:**

Gibberellic Acid .....2.0%

**INERT INGREDIENT:**.....98.0%

**TOTAL:**.....100.0%

Equivalent to 64 grams a.i. of Gibberellic Acid per gallon

**KEEP OUT OF REACH OF CHILDREN**

**WARNING-AVISO**

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.  
(If you do not understand this label, find someone to explain it to you in detail).

**FIRST AID**

**IF IN EYES:**

- Hold eye open and rinse slowly and gently with water for 15-20 minutes.
- Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.
- Call a poison control center or doctor for treatment advice.

**IF SWALLOWED:**

- Call a poison control center or doctor immediately for treatment advice.
- Have person sip a glass of water if able to swallow.
- Do not induce vomiting unless told to do so by a poison control center or doctor.
- Do not give anything by mouth to an unconscious person.

**IF INHALED:**

- Move person to fresh air.
- If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.
- Call a poison control center or doctor for further treatment advice.

**IF ON SKIN OR CLOTHING:**

- Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15-20 minutes.
- Call a poison control center or doctor immediately for treatment advice.

**HOT LINE NUMBER**

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. In case of emergency, call ChemTrec at 1-800-424-9300.

**See Inside Panel For Additional Precautionary Statements**

EPA Reg. No. 5905-SN

EPA Est No. 5905-AR-001  
Net Contents

**MANUFACTURED FOR**  
**HELENA CHEMICAL COMPANY**  
225 SCHILLING BOULEVARD, SUITE 300  
COLLIERVILLE, TENNESSEE 38017

**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS  
WARNING**

Causes substantial but temporary eye injury. Harmful if inhaled, swallowed or absorbed through skin. Do not get in eyes, on skin or on clothing. Avoid breathing vapor or spray mist, and avoid contact with skin. Wear goggles or safety glasses. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

**PERSONAL PROTECTIVE EQUIPMENT**

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category C on an EPA chemical resistance category selection chart.

Applicators and other handlers must wear: Long-sleeved shirt and long pants, chemical-resistant gloves, such as Barrier Laminate, Butyl Rubber  $\geq$  14 mils, Nitrile Rubber  $\geq$  14 mils, Neoprene Rubber  $\geq$  14 mils, Polyvinyl Chloride (PVC)  $\geq$  14 mils, Viton  $\geq$  14mils, Shoes plus socks and protective eyewear.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

**ENGINEERING CONTROLS STATEMENTS**

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

**USER SAFETY RECOMMENDATIONS**

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.
- Users should remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

**ENVIRONMENTAL HAZARDS**

For terrestrial uses, do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water by cleaning of equipment or disposal of equipment washwater or rinsate. Exposed treated seed may be hazardous to birds and other wildlife. Dispose of all excess treated seed and seed packaging by burial away from bodies of water.

**PHYSICAL AND CHEMICAL HAZARDS**

**Flammable:** Keep away from heat and open flame.

## DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirement specific to your State or Tribe, consult the State/Tribal agency responsible for pesticide regulation.

### AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

For early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, in soil, or water, wear: Coveralls, chemical-resistant gloves, such as Barrier Laminate, Butyl Rubber  $\geq$  14 mils, Nitrile Rubber  $\geq$  14 mils, Neoprene Rubber  $\geq$  14 mils, Polyvinyl Chloride (PVC)  $\geq$  14 mils, Viton  $\geq$  14mils, Shoes plus socks and protective eyewear.

### NON AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Do not enter treated areas without PPE until sprays have dried.

### IMPORTANT

Before application, read accompanying **First-UP™ RST Spray Guide** carefully and use only as directed. **DO NOT APPLY THIS PRODUCT THROUGH ANY TYPE OF IRRIGATION SYSTEM**

**NOTE:** Gibberellic Acid is an extremely potent plant growth regulator. For best results, read all directions for use thoroughly. Consult your local experiment station specialist, distributor, or the Helena agricultural specialist in your area for the spray schedule best suited to your conditions.

Discard any unused spray material at the end of each day. Prepare solution concentrations by mixing the required amount of product with water only in a clean, empty spray tank.

Use only as directed. Read and understand this label thoroughly before making applications. Effectiveness requires that all parts of plant or crop must receive spray or desired result will not occur, so spray thoroughly. When a range of rates is indicated, use the concentration and spray volume recommended locally.

Data concerning the compatibility of First-UP™ RST with other agricultural compounds is not available, except where specified.

### SPRAY GUIDELINES FOR GRAPES

For all grapes, make application by ground sprayer. Use 100 to 500 gallons per acre as a dilute spray according to foliage density, or 30 to 80 gallons per acre as a concentrate spray, unless specified otherwise. Do not exceed maximum rates. It is important to wet all berries thoroughly.

#### THOMPSON SEEDLESS GRAPES

**For cluster elongation ("Stretch"), looser cluster forms, and reducing cost of thinning, when used in conjunction with established girdling and thinning practices:** Apply 8 to 16 grams a.i. per acre before bloom when flower clusters are 3 to 5 inches long.

**For decreased berry set ("Thinning"), reducing hand-thinning costs, and hastened maturity:** Apply 8 to 16 grams a.i. per acre per application during bloom as one application or as two applications of equal amounts when the bloom period is extended with the second application made 3 to 7 days after the first application.

**For larger berries ("Sizing") and larger clusters when used in conjunction with established girdling and thinning practices:** Apply 32 to 80 grams a.i. per acre per application in 1 to 3 applications beginning when average berry size is 4-5 millimeters in diameter. Make applications within a 14 day period. Timing of the second and third spray will be dictated by experience in the vineyard to be sprayed and temperatures occurring during the interim between sprays. Potential effect will be reduced if the second and/or third spray occurs more than two weeks after the first application.

**NOTE:** Do not apply more than 208 grams a.i. per acre per growing season for all uses.

#### THOMPSON SEEDLESS GRAPES FOR RAISINS

**For cluster elongation ("Stretch") and looser cluster forms, allowing better air circulation to aid in the control of bunch rot and increase light penetration aiding in sugar development:** Apply 8 to 16 grams a.i. per acre before bloom when flower clusters are 3 to 5 inches long.

**For decreasing berry set, ("Thinning") with increased raisin quality, and hastened maturity:** Apply 0.75 to 6 grams a.i. per acre when most bunches are in 60% to 80% bloom.

#### FLAME SEEDLESS GRAPES

**For decreased berry set ("Thinning") and reducing hand-thinning costs:** Apply 3 to 7.5 grams a.i. per acre during bloom. Higher amounts may cause an excess of shot berries or overthinning.

**For larger berries ("Sizing") and larger clusters when used in conjunction with established girdling and thinning practices:** Apply 20 to 48 grams a.i. per acre per application in 1 to 3 applications beginning when average berry size reaches 6 to 8 millimeters in diameter. Make applications within a 14 day period. Timing of the second and third spray will be dictated by experience in the vineyard to be sprayed and temperatures occurring during the interim between sprays. Potential effect will be reduced if the second and/or third spray occurs more than two weeks after the first application. **NOTE:** Do not apply more than 103.5 grams a.i. per acre per growing season for all uses.

## PERLETTE GRAPES

**For larger berries ("Sizing") and larger clusters when used in conjunction with established girdling and thinning practices:** Apply 32 to 80 grams a.i. per acre per application in 1 to 3 applications beginning when average berry size is 4 to 5 millimeters in diameter. Make applications within a 14 day period. Timing of the second and third spray will be dictated by experience in the vineyard to be sprayed and temperatures occurring during the interim between sprays. Potential effect will be reduced if the second and/or third spray occurs more than two weeks after the first application.

**NOTE:** Do not apply more than 160 grams a.i. per acre per growing season for all uses.

## OTHER SEEDLESS VARIETIES SUCH AS SEEDLESS TOKAY, INTERLOCKEN SERIES AND RELATED HYBRIDS

**For larger berries and larger clusters when used in conjunction with established girdling and thinning practices:** Apply 8 to 48 grams a.i. per acre as one application at or just after shatter (usually 2 to 3 days later) or as two applications of equal amounts not to exceed a total of 48 grams a.i. per acre, with the first made at or just after shatter, followed during the next two weeks by the second application. Timing of the second spray with split application will be dictated by experience in the vineyard to be sprayed and temperatures occurring during the interim between sprays. Potential effect will be reduced if the second spray occurs more than two weeks after the first application.

## EMPEROR GRAPES

**For reducing berry shrivel. This can also increase berry size:** Apply 20 grams a.i. per acre as one application in 200 to 250 gallons/A approximately two weeks after completion of shatter following bloom. This timing should correspond to a period when the predominant berry diameter ranges from 10 to 15 millimeters.

## BLACK CORINTH (ZANTE CURRANT) GRAPES

**For improving berry size:** Apply spray containing 1 to 8 grams a.i. per acre 3 to 5 days after full bloom, but before shatter begins.

## SPRAY GUIDELINES FOR CITRUS

### NAVEL ORANGES

**(California) To delay aging of the rind and reduce rind disorders (e.g. rind staining, water spotting, sticky or tacky surface, puffy rind and rupture under pressure) and to produce a more orderly harvesting pattern: EARLY SPRAY (Before color change):** The delay in rind aging is greatest when the early spray is applied before a color change. This spray timing produces the firmest rind possible. Apply one spray two weeks prior to color break which normally occurs August to November. Apply 10 to 40 grams a.i. per acre as a concentrate or dilute spray in sufficient gallonage to insure thorough wetting.

**NOTE:** Do not apply to groves that may be harvested early as a reduction in grade may result due to the delayed coloring. Do not apply in white wash sprays in which lime or other caustic material has produced a high pH in the spray tank.

**LATE SPRAY (After color break):** Apply one spray just after marketable color has developed which is normally from October through December. Apply 16 to 48 grams a.i. per acre as a concentrate or dilute spray in sufficient gallonage to insure thorough wetting.

**NOTE:** Do not spray Navel orange trees from January through July. Sprays applied in January/February may cause reduced production the following year. Do not apply within 10 days of harvest.

**NOTE:** A slight increase in mature leaf drop may occur in trees under stress.

### VALENCIA ORANGES

**(California) To reduce rind creasing and to delay aging and softening of the rind:** Apply a single spray in August or September to trees with a target crop of young fruit. Apply 40 to 80 grams a.i. per acre as a concentrate or dilute spray in sufficient gallonage to insure thorough wetting.

**NOTE:** Slower color development should be expected in the target crop. Increased regreening of mature fruit, if present may occur. After marketable color is achieved, treatment effects may be reduced the longer treated fruit remain on the tree.

### LEMONS

**(California except desert valleys) To decrease the amount of small tree ripe fruit and to produce a more desirable production pattern in relation to market demand:** Apply one spray when target crop is 1/2 to 3/4 full size but still green. Use 10 - 20 grams a.i. per acre as a concentrate or dilute spray in sufficient gallonage to insure thorough wetting. When applied two years in a row, an even larger difference in harvest pattern and maturity occurs.

**NOTE:** Do not apply within seven days of harvest. Do not apply in spring or summer.

### TANGERINE HYBRIDS

**(Florida) To increase fruit set and yields on tangerine hybrids with pollination problems such as the Orlando, Robinson, Minneola and Sunburst:** Apply sprays during full bloom. Be sure to wet the leaves sufficiently. Fruits are generally seedless. Use 8 to 30 grams a.i. in 400 to 500 gallons/A on large mature trees.

**NOTE:** A slight increase in mature leaf drop occurs at concentrations above 25 ppm. Fruit sizes may be reduced and color development slightly retarded.

**(California) To delay disorders associated with rind aging of the Minneola tangelo, e.g., puffiness and softening and to increase peel strength:** Apply 20 to 40 grams a.i. per acre as a dilute spray in sufficient gallonage to insure thorough wetting.

**NOTE:** Do not apply if early harvest is planned. Do not apply after coloring as pre-harvest rind staining may occur. Application during coloring may cause variation in rind color development.

### GRAPEFRUIT

**(Florida and Texas) To delay disorders associated with rind aging, e.g., puffiness, softening and orange coloration, to prevent preharvest drop of mature fruit and to increase peel strength and reduce water loss during storage:** Apply a single spray to fully colored fruit during the November through January period. Use 20 to 56 grams a.i. in 500 to 700 gallons/A containing a suitable non-ionic surfactant. It is advisable to spot pick heavy crops to aid early marketing and to avoid reduction of yields which generally follow late held crops.

**NOTE:** Applications made after January or when trees begin to break dormancy may adversely affect new crop. Do not use concentrate sprays. Results may vary season to season depending on environmental conditions.

## GRAPEFRUIT, STAR RUBY VARIETY

(Texas) *To reduce early-season drop of small fruit of Star Ruby Variety thereby increasing yields:* Apply a single spray during the bloom period. Use 25 grams a.i. in 250 gallons water final spray mixture per acre. To enhance efficacy, use a suitable surfactant.

**NOTE:** Do not tank-mix with other chemicals. Do not apply concentrated solution. Results may vary season to season depending on environmental conditions. Maintain a well-balanced fertilization and watering program.

## SPRAY GUIDELINES FOR FRUIT CROPS

### BLUEBERRIES

*For improving fruit set. For set problems due to insufficient natural honeybee pollination on varieties such as Coville, Jersey, Stanley, Earlieblue, Weymouth and others:* Make a single foliage spray application at full bloom (when over 75% of all flowers are fully open). For Weymouth, application can be delayed up to two weeks after full bloom to affect sizing of shot berries. Use 80 grams a.i. in 100 gallons of water. Use of a spreader-sticker is recommended. Apply to the point of run-off, thoroughly wetting all parts of the plant. Total gallowage will depend on size and density of the plants.

**NOTE:** Do not exceed 300 gallons/A. Although some varieties bloom closer to harvest than others, in no case should application be made closer than 40 days before harvest. Do not apply to plants in a low state of vigor.

### SWEET CHERRIES

*To delay harvesting, to produce a brighter colored, firmer fruit and to increase size:* Apply spray when the fruit is light green to straw colored. Apply 16 to 48 grams a.i. per acre using sufficient water to obtain complete coverage of the tree.

**NOTE:** Do not apply within one week of harvest.

### RED TART CHERRIES

(All states except California) *To maintain and extend high fruiting capacity of bearing tart cherry trees and reduce occurrence of "blind" nodes by stimulating lateral vegetative buds to develop a more productive balance of lateral shoots and spurs.* First-UP™ RST must be applied annually to insure vegetative development and subsequent yield improvement year after year.

**Timing:** Apply a single foliar spray between 14 to 28 days after bloom. Research and commercial experience has determined 21 days after full bloom to be optimum. Best timing is further defined as that stage when 3-5 terminal leaves have fully expanded, or, at least 1-3 inches of terminal shoot extension has occurred.

**Concentration:** 10 to 25 ppm. Use higher and lower rates to vary the response you desire.

**Method of Application:** Best results have been achieved with high volume sprays of 100 gallons or more of finished spray per acre. However, lower volume sprays can be equally effective, but extreme care must be exercised to avoid an overdose as spray volume is decreased.

**HIGH VOLUME SPRAY GUIDE** (100 or more gallons per acre)

|   |      |       |       |     |
|---|------|-------|-------|-----|
| Tree Age (Years)                        | 6-10 | 10-15 | 16-20 | 20+ |
| Concentration (ppm)                     | 10   | 15    | 20    | 25  |
| Grams a.i./ 100 Gallons                 | 4    | 6     | 8     | 10  |
| Recommended Water Volume (Gallons/Acre) | 150  | 150   | 150   | 150 |
| Grams a.i./A                            | 6    | 9     | 12    | 15  |

**LOW VOLUME SPRAY GUIDE** (50 - 100 gallons per acre)

|                             |      |       |       |     |
|-----------------------------|------|-------|-------|-----|
| Tree Age (Years)            | 6-10 | 10-15 | 16-20 | 20+ |
| Grams a.i./A - Normal Vigor | 4    | 8     | 10    | 14  |
| - Low Vigor                 | 6    | 10    | 14    | 18  |

**NOTE:** Use a minimum of 50 gallons/acre for a low volume spray application and obtain uniform coverage of the whole tree. Rates of **First-UP™ RST** in the above chart are based on expected tree vigor at various ages in a normal orchard. Each orchard presents a different situation. Adjust **First-UP™ RST** rate to complement vigor of trees. If trees are vigorous, use lower rates. Use higher rate for trees low in vigor and weak in shoot and spur production. Excessive application rates on any tree will increase vegetative growth at the expense of fruit production the following year.

**NOTE:** Use lowest rates of **First-UP™ RST** on trees that have been heavily pruned or hedged. Do not use of additional wetting or spreading agents.

**First-UP™ RST** will not improve growth of trees under stress (nutritional, moisture, winter injury) or other factors inhibiting normal growth and development resulting from physical damage or unsound orchard practices. Best results from **First-UP™ RST** will be obtained when combined with good cultural practices.

**SPRAY GUIDELINES FOR NON-BEARING FRUIT TREES****YOUNG TART AND SWEET CHERRY TREES**

(All states except California) *To reduce flowering and fruiting in young tart and sweet cherry trees to minimize the competitive effect of early fruiting on tree development:* Apply **First-UP™ RST** two to four weeks after bloom. Use 20 to 40 grams a.i. in 100 gallons of water. Apply a foliar spray of 25 to 50 gallons per acre, assuming a tree density of 100 trees per acre equivalent, or apply about one quart of spray volume per tree. Under conditions of low vigor, make two applications. If two spray applications are made, allow at least a seven-day interval between sprays.

**NOTE: DO NOT SPRAY TREES IN THE FIRST YEAR.** Treat in the second season for reduction of flowering in the third season and again in the third season if reduction of flowering and fruiting is desired in the fourth season.

**NON-BEARING PEACHES**

(North Carolina, South Carolina, Georgia, Florida, Alabama, Tennessee, Mississippi) *To reduce flowering and fruiting in young non-bearing peaches to minimize the competitive effect of early fruiting on tree development:* Apply a single spray in the fall after flower buds have been initiated. This corresponds to the period immediately before and at the onset of early leaf drop, typically late September to early October. Apply **First-UP™ RST** at the rate of 200 - 400 ppm in 10 - 50

gallons of water per acre. Best results are obtained when applied with a handgun and tree canopy is wetted thoroughly to the point of run-off. The addition of a non-ionic surfactant will improve efficacy. Refer to the table for mixing instructions.

| <u>Fl. Ozs. of First-UP™ RST in:</u> | <u>200 ppm</u> | <u>400 ppm</u> |
|--------------------------------------|----------------|----------------|
| 10 Gallons Water                     | 16             | 32             |
| 50 Gallons Water                     | 80             | 160            |

Treat only trees that are in good physiological condition. Trees must have completed their first leaf before commencing treatments. Discontinue treatment the year before desired harvest.

### SPRAY GUIDELINES FOR OTHER FRUIT

#### OLYMPUS STRAWBERRIES

**(N.W. US Only; propagation stock) To increase runner production of mother plants of the Olympus cultivar:** Apply a single spray to mother plants 10 to 30 days after planting. At the time of spraying, ensure plants have 1 to 6 leaves. Apply 100 gallons/A to thoroughly wet new foliage to the point of run-off. Use 20 grams a.i. per acre.

**NOTE:** Not for use on fruiting plants. Treatments may not be effective on plantings set out after mid-May.

#### FORCING RHUBARB

**To increase yield of marketable forced rhubarb and to break dormancy on plants receiving insufficient chilling.** Apply 2 fluid ounces (60 mls) of a solution containing 20 grams a.i. in 10 gallons to each cleaned crown, when the rest period is not completely broken. When the rest period is broken by cold weather, apply 2 fluid ounces (60 mls) of a solution containing 10 grams a.i. in 10 gallons.

**NOTE:** Keep forcing house temperatures at 40° to 50°F for 24 hours after application. If house is warmer than 50°F, cover the crowns with plastic. Temperatures in the forcing house above 50°F will result in lower yields and poor stalk color.

### SPRAY GUIDELINES FOR VEGETABLE CROPS

#### ARTICHOKES

**(California) To accelerate maturity of artichokes and to shift the harvest to an earlier date:** Apply spray at bud initiation time, normally six weeks prior to anticipated harvest. Be sure the entire plant (leaves, stems and buds) are covered to point of run-off. Use 10 grams a.i. in 100 to 125 gallons/A.

**NOTE:** Do not apply within seven days of harvest.

#### CELERY

**To increase plant height and yield, and overcome stress due to cold weather conditions, or saline soils and to obtain earlier maturity:** Apply spray one to four weeks prior to harvest. Lower concentrations are applied at the three to four-week interval. Higher concentrations at the one to two-week interval. Use 2.5 to 10 grams a.i. in 25 to 50 gallons/A.

**NOTE:** Do not apply earlier than four weeks before harvest as Gibberellic Acid may induce bolting (seed stalk formation). Applications made less than one week preharvest may result in residues. Celery plants must be harvested when mature to ensure quality.

**LETTUCE FOR SEED**

*To obtain uniform bolting and increase seed production:* Apply the following spray schedule:

| <u>Growth Stage</u> | <u>ppm</u> | <u>gram a.i./A</u> | <u>Gallon/A</u> |
|---------------------|------------|--------------------|-----------------|
| 4 leaf stage        | 10         | 0.4                | 10              |
| 8 leaf stage        | 10         | 1.6                | 40              |
| 12 leaf stage       | 10         | 4.0                | 100             |

**NOTE:** Do not feed crop wastes to livestock.

**MELONS AND CUCUMBERS (Except California)**

*To stimulate fruit set during periods of extended cool temperatures:* Apply 2 grams a.i. per acre. Make one application prior to periods of extended cool temperatures. Make one application prior to bloom and two additional applications at 10-14 day intervals following fruit set on cantaloupes and watermelons. For cucumbers, as many as 3 to 4 applications may be required after fruit set.

An adequate spray volume should be used to insure thorough coverage of the exposed foliage. In order to obtain maximum benefit from **First-UP™ RST**, the vines must be in good condition except for a reduced growth rate due to cool temperatures.

**SEED POTATOES**

*To stimulate uniform sprouting- for maximum production, more uniform development, fewer late maturing plants, and to break dormancy of newly harvest potatoes that have not had a full rest period:* Dip freshly dug seed pieces in a solution containing 0.2 to 0.4 gram a.i. in 100 gallons prior to planting.

**NOTE:** If soil temperature is very high, avoid treating rested seed and use the minimum concentration for dormant seed.

**SPINACH**

**(All States except California)** *To facilitate harvest, increase yield and improve quality of fall and over-winter spinach:* Apply a single spray 10 to 14 days before each anticipated harvest on fall or over-winter spinach, ideally when daytime temperatures are 40° to 70°F and during early morning hours when dew is present on crop. Use 6 to 8 grams a.i. per acre in 10 to 50 gallons/A by ground sprayer or in a minimum of 5 to 10 gallons/A by air. Maximum benefit from **First-UP™ RST** is obtained when below normal temperatures predominate following application and growth would be otherwise slowed in untreated spinach.

**NOTE:** Since Gibberellic Acid can promote bolting, do not apply to spinach after the mid-winter period or if temperatures may be expected to exceed 75°F within several days of application. Do not apply on spring-planted spinach.

## SPRAY GUIDELINES FOR FLORICULTURE CROPS

### AZALEA (Except California)

The following are based on results with common azalea cultivars. Differences in responsiveness may vary from one cultivar to another, or from one set of growing conditions to another, or from one cultural management system to another. Therefore, prior to widespread usage, a small number of plants from each cultivar under a specific set of growing and cultural management conditions should be tested to verify desired efficacy.

Spray plants to run-off. The actual spray application rate will vary, depending on plant size and spacing density. Thorough spray coverage is essential for uniform flowering. A representative spray application rate which has been proven effective for 6 inch potted plants spaced at a density of 1 per square foot is 1 gallon/200 square feet.

**PARTIAL SUBSTITUTION OF COLD (Three Sprays):** *As a partial replacement of cold treatment to break flower dormancy:* Apply three sprays of 1.0 to 2.0 gram a.i. per gallon of spray (equivalent to 265-530 ppm a.i.) at weekly intervals after 3-4 weeks of chilling. **NOTE:** Ensure plants are at Stage 5 of floral development (i.e. style elongated and open) when treatment is initiated. A representative spray schedule would consist of applications made at 3, 10 and 17 days after four weeks of chilling. Flowers will not develop properly if applied prior to Stage 5.

**PARTIAL SUBSTITUTION OF COLD ( One Spray):** On some cultivars (e.g. 'Gloria', 'Prize', and 'Redwing'), a single spray of 4.0 grams a.i. per gallon of spray (equivalent to 1055 ppm a.i.) after 3-4 weeks of chilling has proven effective in breaking dormancy.

**TOTAL SUBSTITUTION OF COLD:** *As a complete substitution of cold treatment to break flower dormancy:* Apply four to six sprays of 4.0 grams a.i. per gallon of spray (equivalent to 1055 ppm a.i.) at weekly intervals. Plants must be at Stage 5 of floral development (style elongated and open) before first spray is applied. **NOTE:** Flowers will not develop properly if applied prior to Stage 5 of floral development.

**FLOWER BUD INITIATION:** *To inhibit flower bud initiation during vegetative growth:* After each pinch, apply two to three sprays of 0.5 to 3.0 grams a.i. per gallon of spray (equivalent to 130 to 850 ppm a.i.) at intervals of 2 to 3 weeks.

### POMPOM CHRYSANTHEMUMS

**(Florida) For elongating peduncles on pompom chrysanthemums:** Apply a single spray 4 to 5 weeks after initiation of short day conditions. Use 1/2 to 1 gram a.i. in 12 gallons for application to 1000 sq. ft. of bed (equivalent to 20 to 40 grams a.i. in 500 gallons/A). Apply with overhead nozzles directing the spray to the flower buds.

**NOTE:** Overuse or incorrect timing may cause long, spindly and weak stems.

### STATICE

**(Florida) To promote earlier flowering and to increase flower yield:** Apply a single drench spray when plants are more than 10 inches in diameter (approximately 90 to 110 days after normal seeding time). Use 40 to 50 grams a.i. in 25 gallons to provide 10 ml (5 mg a.i.) solution per plant.

**NOTE:** Do not exceed specified rates. Do not apply repeated sprays. Accelerated flowering is influenced by extended photoperiod, adequate nutrition and reduced night temperature. Treatment with gibberellins lessens the requirement for the cold requirement and/or the long photoperiod.

**SPATHIPHYLLUM**

*To induce flowering of spathiphyllum:* Apply single full coverage spray containing 1.0 gram a.i. per gallon of spray (equivalent to 265 ppm a.i.). Make applications during the non-seasonal bloom period, typically June through January.  
**NOTE:** Distorted bloom, increased petiole length and narrower leaves may appear on some cultivars.

**SPRAY GUIDELINES FOR ADDITIONAL CROPS**

**BERMUDAGRASS GOLF TURF**

*(Except California) To initiate or maintain growth and prevent color change during periods of cold stress and light frosts on golf course Bermuda grass (e.g. Tifdwarf, Tifgreen, etc.):* Apply 10 grams a.i. weekly or 25 grams a.i. biweekly in 25 to 100 gallons/A. Use 1/4 to 2/3 gram a.i. in approximately 6 gallons appropriate for the spray equipment for application to 1000 sq. ft. (equivalent to 10 to 25 grams a.i. per acre in 25 to 100 gallons/A).

**NOTE:** Do not exceed specific rates. Do not apply during extended warm periods where night temperatures exceed 65°F.

*To maintain or enhance regrowth during summer months:* Apply 1 to 3 grams a.i. per acre weekly in 25 to 100 gallons per acre. Maintain adequate moisture and proper fertilization programs recommended in local area. Discontinue treatments if thinning is observed. Do not apply the high rate more frequently than every two weeks. More frequent mowing may be necessary. Do not use on dormant turf.

**COTTON**

*(All States Except California) To promote early plant growth, increase early seedling vigor, and to overcome stress caused by cool weather:* Apply 1 to 3 grams a.i. per acre as a foliar application from the 2 leaf stage through the 5 leaf stage. Make 1 - 2 applications as needed. Use 5 to 40 gallons of water by ground application or 3 to 10 gallons by air.

**NOTE:** Use higher rates when temperatures will likely average 75°F or less during the 14 days following the application. Do not tank mix with herbicides. Do not apply more often than necessary to achieve the desired height, as overdosage may result in excessive growth.

**GRAIN SORGHUM SEED TREATMENT**

*(Except California) For use as a seed treatment to break dormancy and allow germination under cold soil conditions.* Use 0.25 to 1.00 grams a.i per 100 pounds of seed. **First-UP™ RST** can be applied to dry seed with standard mist-treating equipment. Make certain the seed is completely and uniformly covered with **First-UP™ RST**. Fill the seed treatment tank with water to one-half the final tank mix volume. Add the required amount of **First-UP™ RST**, mixing thoroughly while adding water and other seed treatment products to the desired final volume.

Do not use treated seed for food, feed or oil purposes. An approved dye must be added to distinguish **First-UP™ RST** treated seed and prevent inadvertent use for food, feed or oil purposes. Seed commercially treated with this product must be labeled in accordance with all applicable requirements of the Federal and State seed laws. **First-UP™ RST** is compatible

with most commonly used fungicide seed treatments such as VITAVAX and DITHANE, standard dyes and sticker-binding agents. When preparing tank mixes, ensure adequate physical compatibility and mixing characteristics.

## HOPS

**(For seeded and seedless Fuggle hops and similar varieties adapted to Oregon and the Northwest) To increase yield and pickability:** Apply spray when vine growth is five to eight feet in length. Use 4 to 6 grams a.i. in 100 to 150 gallons/A.

**NOTE:** Do not apply within three weeks of harvest.

## RICE SEED TREATMENT

**(Except California) For use as a seed treatment on both semi-dwarf and tall rice varieties to promote germination, emergence and final stand densities when planted at greater depths where soil moisture levels are more adequate for germination.** First-UP™ RST is particularly effective on semi-dwarf varieties such as 'Lemont', 'Gulfmont', and 'Texmont'. This will also result in more uniform emergence thus allowing more accurate and efficient herbicide, fertilizer, fungicide and insecticide applications and may maximize yield and improve grain quality.

Apply only to rice seed intended for drill seeded or dry broadcast systems. Do not apply to rice used in a 24 hour presoak prior to broadcast. Do not use more than 2.0 grams a.i. per 100 pounds of seed. **DO NOT USE TREATED SEED FOR FOOD, FEED, OR OIL PURPOSES.**

Use 1.00 to 2.00 grams a.i. in 8 to 20 ozs water per 100 pounds of rice seed. First-UP™ RST can be applied to dry seed with standard mist-treating equipment. Best results are obtained using a higher treatment volume (12 to 20 ozs/cwt of seed) to insure the seed is completely and uniformly covered with First-UP™ RST. Fill the seed treatment tank with water to one-half the final tank mix volume. Add the required amount of First-UP™ RST, mixing thoroughly while adding water and other seed treatment products to the desired final volume.

An approved dye must be added to distinguish First-UP™ RST treated seed and prevent inadvertent use for food, feed or oil purposes. Seed commercially treated with this product must be labeled in accordance with all applicable requirements of the Federal and State seed laws. First-UP™ RST is compatible with most commonly used fungicide seed treatments such as VITAVAX and DITHANE, standard dyes and sticker-binding agents. When preparing tank mixes, ensure adequate physical compatibility and mixing characteristics.

## RICE POST-EMERGENCE SEEDLING TREATMENT

**(All States Except California) For use as a post-emergence seedling application on rice grown in the United States to promote more uniform and vigorous growth prior to permanent flooding.** Early season foliar applications of First-UP™ RST will promote vigorous and more uniform seedling growth of rice prior to permanent flood establishment. This will allow earlier (5 to 10 days) flooding of drill or dry broadcast seeded varieties and is particularly effective on semi-dwarf varieties. Early flooding may reduce additional flushing costs associated with a delay in permanent flooding, weed infestations and the number of herbicide applications as well as promote earlier and more uniform grain maturity. First-UP™ RST application may result in a temporary lighter green foliage color due to accelerated growth rates.

Avoid drift or accidental application to other crops. Do not apply when rice is subject to drought stress conditions. First-UP™ RST can be tank mixed with most commonly used rice herbicides and fungicides. When First-UP™ RST is applied in tank mixes with Arrosolo, Riverside Propanil 60DF, Stam M4 combined with labeled herbicides, Stam 80EDF or Wham EZ, plus a recommended adjuvant, the use of a surfactant is not necessary. Do not apply with Whip.

**First-UP™ RST** applied between split-boot and 100% heading can increase panicle height of semi-dwarf rice. This may facilitate harvest efficiency in the field by allowing the rice grain to be cut above the leaf canopy at faster combine speeds and at reduced vegetative load. Grain quality and maturity can be advanced with the promotion of tiller panicle development. Heading applications to the first crop can also accelerate regrowth of second crop rice. This can result in earlier second crop maturity and maximize grain yield.

### SEEDLING APPLICATIONS

Apply **First-UP™ RST** at a rate of 1 to 3 grams a.i. per acre to rice between the 1 to 2 leaf stage and the 4 to 5 leaf stage of growth. Timing and dosage is based on environmental conditions, tank mix combinations with herbicides, and preferred permanent flood practice in relation to rice leaf stage.

For best results, apply **First-UP™ RST** at a rate of 1 to 2 grams a.i. per acre using either a commercially acceptable non-ionic 80:20 wetter/spreader adjuvant or in tank mix combination with rice herbicides. Use higher rates (1.5 to 3 grams a.i. per acre) with some dry and water based herbicide formulations, or when temperatures will likely average 75°F or less during 14 days after application.

### PANICLE EXTENSION APPLICATIONS

Apply 3 to 8 grams a.i. per acre between split-boot and 100% panicle heading to promote main culm and tiller panicle extension. Make applications with fixed wing aircraft at 10 gallons spray volume per acre. Tank mixing with 80:20 non-ionic spreader stickers when used on rice for fungicide or insecticide applications is recommended

### APPLICATION EQUIPMENT

Apply **First-UP™ RST** by fixed wing aircraft equipped with spray systems capable of producing a uniform medium to fine spray droplet pattern. Do not apply less than 10 gallons total spray volume per acre. Low pressure ground sprayers equipped with boom and flat fan nozzles and applying 10 to 15 gallons total spray volume per acre may be used.

### CONVERSION TABLE

| GRAMS OF ACTUAL<br>GIBBERELIC ACID/ACRE   | TO | AMOUNT OF First-UP™ RST<br>LIQUID FORMULATION/ACRE                        |
|---|----|---|
| Desired Actual Gibberellic Acid<br>Concentration (grams a.i.) in<br>Finished Spray (Per Acre) |    | First-UP™ RST contains 0.5 gram a.i.<br>per Fl. Oz. of Formulated Product |

|      |  |       |
|------|--|-------|
| 0.5  |  | 1 oz  |
| 1.0  |  | 2 oz  |
| 2.0  |  | 4 oz  |
| 4.0  |  | 8 oz  |
| 5.0  |  | 10 oz |
| 8.0  |  | 16 oz |
| 10.0 |  | 20 oz |
| 12.0 |  | 24 oz |
| 16.0 |  | 32 oz |
| 20.0 |  | 40 oz |

|      |        |
|------|--------|
| 25.0 | 50 oz  |
| 32.0 | 64 oz  |
| 40.0 | 80 oz  |
| 48.0 | 96 oz  |
| 50.0 | 100 oz |

**STORAGE AND DISPOSAL**

Do not contaminate water, food or feed by storage or disposal.

**PESTICIDE STORAGE:** Keep containers tightly closed when not in use. Keep away from heat and open flame.

**PESTICIDE DISPOSAL:** Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

**CONTAINER DISPOSAL:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

**CONDITIONS OF SALE - LIMITED WARRANTY  
AND LIMITATIONS OF LIABILITY AND REMEDIES**

**Read the Conditions of Sale - Warranty and Limitations of Liability and Remedies before using this product. If the terms are not acceptable, return the product, unopened, and the full purchase price will be refunded.**

The directions on this label are believed to be reliable and should be followed carefully. Insufficient control of pests and/or injury to the crop to which the product is applied may result from the occurrence of extraordinary or unusual weather conditions or the failure to follow the label directions or good application practices, all of which are beyond the control of Helena Chemical Company (the "Company") or seller. In addition, failure to follow label directions may cause injury to crops, animals, man or the environment. The Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purpose referred to in the directions for use subject to the factors noted above which are beyond the control of the Company. The Company makes no other warranties or representations of any kind, express or implied, concerning the product, including no implied warranty of merchantability or fitness for any particular purpose.

To the extent allowed by State Law, the exclusive remedy against the Company for any cause of action relating to the handling or use of this product shall be limited to, at Helena Chemical Company's election, one of the following:

1. Refund of the purchase price paid by buyer or user for product bought, or
2. Replacement of the product used

To the extent allowed by law, the Company shall not be liable and any and all claims against the Company are waived for special, indirect, incidental, or consequential damages or expense of any nature, including, but not limited to, loss of profits or income. The Company and the seller offer this product and the buyer and user accept it, subject to the foregoing conditions of sale and limitation of warranty, liability and remedies.

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